STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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January 8, 2009

Ms. L. A. Cole
Director, Environmental, Safety and Health Office
PSNS & IMF
1400 Farragut Avenue
Bremerton, WA 98314-5001

Dear Ms. Cole:

Re: Comments on the Second Draft of All Known Available Reasonable Treatment (AKART) Study
USEPA's NPDES Permit No. WA-00206-2

Thank you for submitting the second draft AKART Study to the Department of Ecology (Ecology) and EPA-Region 10 for review on November 12, 2008, and for addressing many comments that Ecology and EPA submitted by email and teleconference call on the first draft of the AKART Study. We appreciate the work and effort that Puget Sound Naval Shipyard (PSNS) has put in, to complete the Study in such a short time. A thorough review has been made of the second draft AKART Study and we offer the following comments.

1) Chlorine is used as an additive in cooling water. PSNS indicates that chlorine may have a potential to exceed the permit limit (Table 5-4, page 18, contains the statement: "Rough calculations indicate that the contribution of chlorine from potable water could exceed the noted limits." However, chlorine is not included as a pollutant of concern (POC) in Table 6-1, page 23. If a mixing zone for chlorine is needed, then this pollutant needs to be included in the AKART Study.

2) PSNS also identified zinc as a POC (Table 6-1, page 24), but no AKART discussion for zinc is included in the rest of the document. Again, if a mixing zone for zinc is needed, then this pollutant needs to be included in the AKART Study.

3) Page 37, Table 8-6, indicates that the dataset collected for copper for the dry dock outfalls included a high percentage of values in which copper was not detected. The average percentage of values reported as not being detected for four dry dock outfalls was 62%. The highest percentage reported was 82% for Outfall 019. It appears that the test method used for copper is set at a detection limit of 10 µg/L. Since the limits proposed in the working draft permit are 2.4 and 5.8 µg/L (based on water quality), we recommend that PSNS make arrangements with the laboratory as soon as possible to switch to a detection

limit of less than the proposed permit limits. This should be fairly easily implemented by any accredited laboratory. The lower detection limit is required for compliance assessment purposes, and for better characterization of the wastewater for treatment evaluation or derivation of a mixing zone.

4) Page 59, the last sentence of the first paragraph, indicates that wastewater consisting of potable water is being discharged to Sinclair Inlet. It implies that this potable water is one source of the wastewater being directed to the drydock floors and discharged to Sinclair Inlet by means of the drydock drainage system. The text on page 67 indicates that water directed to the dry dock floors includes hull wash water, steam condensate, and freeze protection water.

What is the potable water being used for on dry docks? Once the potable water comes in contact with the dry dock floors, it will pick up contaminants from the floors and thus it becomes contaminated wastewater. Any water that contacts the dry dock floors has the potential to wash contaminants to Sinclair Inlet. Of the three waste streams that comprise the dry dock discharge, the dry dock floor drainage has the highest concentration of contaminants. We highly recommend that PSNS focus on providing source control and treatment for the dry dock floor drainage/stormwater, as it is the most contaminated of the three waste streams. Currently, the only treatment provided for the drydock floor drainage/stormwater is the removal of heavy particles in settling basins. This waste stream is being diluted with the other two waste streams, the ship cooling water and hydrostatic relief water, prior to the NPDES sampling location and discharge to the Inlet.

5) The AKART analysis for the piers is somewhat limited. Page 95 states that heavy industrial practices do not occur on the piers. Are metal cutting and painting operations prohibited on the piers? Given that there are 1,043 track drains on the piers that drain directly to Sinclair Inlet (page 83), best management practices (BMPs) on the piers should be particularly rigorous.

6) The current practice used with the Process Water Collection System (PWCS) is to divert waste streams to the sanitary sewer based on the turbidity of the waste stream. The ability to control copper using turbidity in the waste stream is based on a correlation of copper and turbidity, as illustrated on Figure 6, page 62. We have two concerns with this current practice.

It is unclear whether the copper and turbidity correlation is applicable at the low copper concentrations regulated under the NPDES permit. The scale on Figure 6 is 0 to 2,000 µg/L. The NPDES permit is concerned with low levels of copper; the benchmark level for stormwater is 20 µg/L for copper. Although difficult to discern from the scale of the figure, it appears there is little correlation between turbidity and copper in this lower range. Please include a graph which highlights the data in the lower copper concentration range (e.g. 1 to 50 µg/L).

It is our understanding that PSNS generally uses a trigger concentration of 25 NTU to divert the waste stream to the sanitary sewer. On page 61, it states that the median copper concentration below 5 NTU is 31 µg/L, with 95 percent of the water samples being below 90 µg/L. Therefore, using 25 NTU as the trigger to direct waste streams to the sanitary sewer would allow waste streams to discharge to Sinclair Inlet at much greater concentrations than the benchmark level of 20 µg/L. Based on the line drawn on Figure 6 representing the correlation between copper and turbidity, it would appear that any waste stream with a turbidity greater than 1 NTU would have a copper concentration greater than 20 µg/L. PSNS should examine the option of lowering the diversion threshold of turbidity from 25 NTU. We also recommend that PSNS explore the option of treatment to remove copper and other contaminants prior to discharge to Sinclair Inlet.

7) As stated on page 67, PSNS believes that the dry dock non-contact cooling water cannot meet the temperature and copper limits as proposed in the working draft permit. Page 69, Section 12.2.3 Combined Cooling Water and Groundwater, states that ship non-contact cooling water which is routed to the dry dock side tunnels/culverts (which are parts of the dry dock drainage system), commingles with the dry dock hydrostatic relief water prior to discharge to the dry dock outfalls. Page 77 states that the copper in cooling water is mostly in the dissolved form.

An effort should be made to reduce the volume of non-contact cooling water and explore the option of converting it to a closed-loop system to achieve zero discharge if it is possible, or providing cooling through chillers. As stated in Section 2.2.2 (page 69), cooling is needed only for nuclear powered naval vessels (as opposed to all vessels being serviced at the shipyard. It is understood that vessels, including non-nuclear vessels, and undergoing ship breaking activities, do not need cooling). Thus, perhaps two to three chillers may be sufficient as opposed to one installation for each drydock as stated on page 75. For the cooling towers option, to prevent scale deposition, periodic back flushing of the cooling towers may be necessary. For the cooling water reduction initiatives option, we support the proposal of reducing the designed flow rate to be closer to the flow rate actually required, and replacing the single pass cooling systems with small heat exchangers or chillers.

For the oily water treatment system option, the cost would be significantly reduced by treating the volume of the most contaminated waste stream, such as the dry dock-floor drainage, as opposed to treating the combined volume of dry dock drainage, non-contact cooling water, and hydrostatic relief water.

For the electro-coagulation treatment option, page 78 states that there is not enough data to consider electro-coagulation treatment as an AKART treatment technology for the removal of dissolved copper. According to the available technical literature, this treatment technology can remove dissolved metals. Attached are some data generated from several facilities removing dissolved copper using electro-coagulation. We suggest that PSNS may review the data and consider reevaluating this treatment option as many facilities have conducted pilot studies and concluded it to be a feasible AKART treatment option.

8) Estimated compliance position for copper with the proposed limit in stormwater: Page 19, Table 5-4 states that the mean concentration of copper in stormwater is 63 µg/L and will therefore regularly exceed the proposed limit in the working draft permit. AKART for copper removal in stormwater should be included in the study in order to qualify for a mixing zone.

9) One of our concerns with ship cooling water is having the cooling water wash contaminants from the dry dock floor into Sinclair Inlet. For this reason, the working draft permit contains a provision that prohibits the direct discharge of ship cooling water that contacts the dry dock floor. The intent of this provision is to prevent contact of the cooling water with spent abrasives, paint chips, and other debris. Page 72 states that for a typical vessel, it takes one week to route the cooling water to the dry dock drainage. For aircraft carriers, two weeks are needed due to the additional time it takes to route the numerous sources of cooling water.

   We understand that time is needed to route the cooling water, however, the cooling must be routed directly to the dry dock drainage system, prior to the start of industrial operations in the dry docks.

10) Wash water (e.g. floor wash water) – The AKART study doesn't appear to adequately address wash water. The working draft permit prohibits the direct discharge of wash water to Sinclair Inlet, because of the potential for wash water to come into contact with pollutants and wash the pollutants to Sinclair Inlet. In PSNS's comments to EPA on the working draft permit, PSNS described the need to discharge wash water to the bay following the flooding of the dry dock. However, with the exception of washing bay silt back to Sinclair Inlet following the flooding of a dry dock, all wash water in the dry dock must be directed to the sanitary sewer, or be treated prior to discharge to Sinclair Inlet. Wash water in industrial areas outside of the dry docks should be directed to the sanitary sewer or treatment.

11) Page 25, Table 6-4 – The draft AKART Study addresses metal cutting only outside of the dry docks. However, metal cutting does occur within the dry docks. Any dry dock floor drainage collected during metal cutting operations should be collected and sent to treatment.

12) Outdoor Metal Work: Attachment 7 – Proposed New and Revised BMPs, BMP 11 on page 167 specific to dry docks, and BMP 12 on page 169 for areas outside of dry docks, item (2) of both BMPs states: "Metal work areas intended for use greater than one month must be completely enclosed." Outdoor metal work includes activities such as grinding, cutting, and sanding. The materials generated from these activities must be contained based on the size and the nature of the job in order to prevent contaminants from getting on the dry dock floors. Control and prevention should be implemented at the source. We highly recommend that this BMP be revised to contain a description of the containment measures to be undertaken for specific activities.

13) Page 86, Section 13.2.3 – Recycle Materials Transfer Site (RMTS): Please include the proposed construction schedule for the area so that stormwater can be appropriately directed to the treatment unit.

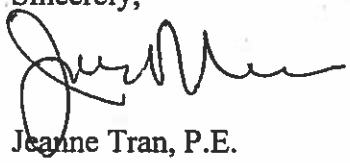
14) Pages 95 and 96, Section 14.4.4.3 Option 3 – Primary Source Control and Enhanced Surface Cleaning: PSNS proposes to implement this option by enclosing all copper anti-fouling spray-painting operations along with enhancing street-sweeping to minimize pollutants from coming in contact with stormwater. We highly support this proposal. Does PSNS have a proposed construction schedule for this project?

15) Page 115, Table 16-2 – Proposed Working Draft Permit Limits: The oil & grease limits listed on that table are reversed.

16) Page 158: Please identify the "high risk" work areas. How do they compare to the stormwater zones identified in Section 14?

Thank you for the opportunity to review the Study. Please contact me or Susan Poulsom if you have any questions pertaining to the comments above. I can be reached at jtra461@ecy.wa.gov , or by telephone at (425) 649-7078. Susan can be reached at poulsom.susan@.epa.gov , or by telephone at (206) 553-6258.

Sincerely,



Jeanne Tran, P.E.
Water Quality Engineer

JT:ct
Attachments: Data on Metal Removal from Water Tectonics
Cc: Susan Poulsom, EPA Region 10
Michael Lidgard, EPA Region 10
Matt Jabloner, PSNS & IMF
Steve Rupp, PSNS & IMF
Gerald Sherrell, PSNS & IMF